

**Build a 2m 8db collinear for £20**  
**( Named the M3FVB and not by me HI !!!)**

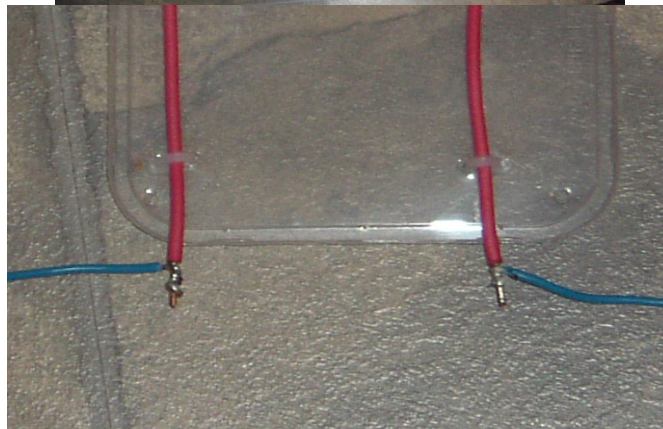
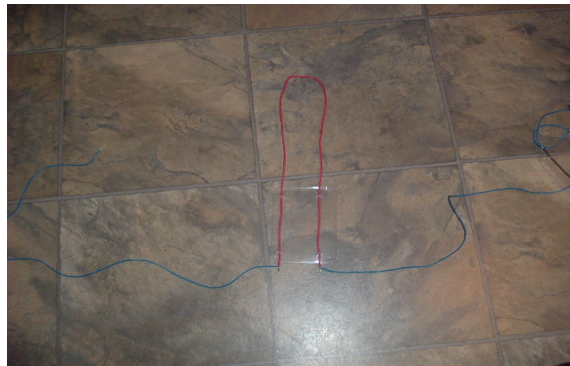
As some of the club members may have noticed I enjoy making my own antennas and sometimes from the most unusual materials however a quick flick through my log book tells me I must have got something right (well sometimes!).

This project came about as I was looking for a high gain omni directional antenna to use in the field. I needed something that was light weight and could be carried in a small package when collapsed...Oh yes made the most of my 10 watts and didn't rob the bank.

After some unsuccessful experimenting using capacitors for phasing the elements I settled on a stacked j pole consisting of four half wave radiating elements, with each element taken 180 degrees out of phase using a half wave phasing section that separates each radiator. If all that sounds nonsense don't worry I have simplified it by giving all numbers (see diagram at the end of the article) and the materials that I have used but use your imagination if you cannot use or source the same materials.

I started to build the antenna by cutting four lengths of wire, the measurement is 38.75ins for a half wave @ 145mhz but I cut them at 39.75ins to compensate for the joints. The wire I used was multi stranded insulated wire that was from a discarded lawn mower lead.

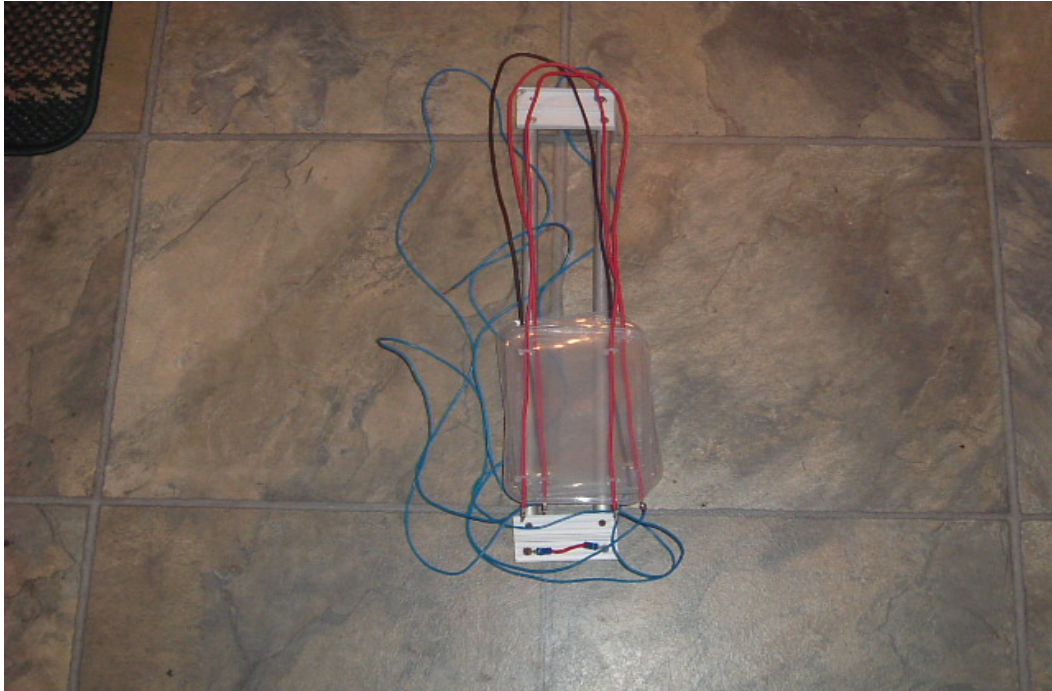
The end of each length I stripped back ½ in of insulation, the next step I cut 3 lengths of twin and earth and here I used the insulated wire (red and black wires) the length of each wire is 38.75ins again half wave lengths, these are for the phasing sections that separates each element. I folded each in half and mounted them on plastic lids which are used for fast food containers (scrounged from work), using cable ties to keep them secure I soldered the four elements to the three phasing sections. The gap of the phasing elements is 3in...see photos.





The matching transformer was made from two lengths of alloy tubing spaced 1.8ins apart and screwed to two plastic rails to keep them parallel.





And the antenna completed ready for taping to a fishing pole.



This Antenna is DC grounded by the matching transformer and a choke balun is a must to stop the feeder radiating. Here (as close to the feed point as poss) I wound 8 turns of the coax round a piece of waste water pipe.

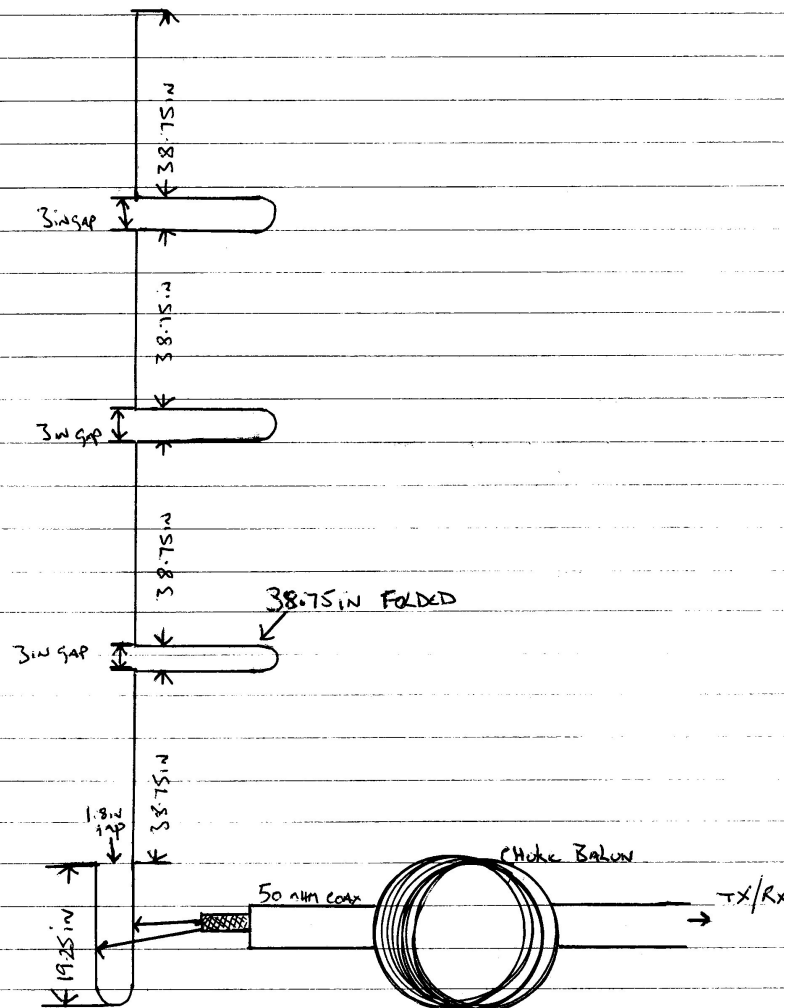


The antenna taped to a roach pole which is the biggest out lay and this was purchased from G3CWI (Richard). So yet another use for a SOTA pole!

I used crocodile clips for sliding up and down the matching transformer, ideally using an antenna analyser while building each section would give max performance however I found if the antenna did not resonate I couldn't achieve an SWR reading below 2:1, with making all measurements exact a reading below 1.5:1 was easily achieved in a couple of minutes.

STACKED 2 POLE By M3FVB

NOT TO SCALE



Thanks to Andy (M1BYH) for driving around Macclesfield while I tested the antenna and my Dad for the use of his scanner. Each half wave will give a gain of around 2db....73's....de...M3FVB